



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

The system of muscles, both of inspiration and of expiration, is minutely detailed, and their various modes of action examined. He next investigates the series of nerves appropriated to the exercise of the respiratory function, and establishes a distinction in the offices of these nerves, corresponding to the sources from which they derive their origin, and presenting remarkable analogies with similar distinctions in the nerves of vertebrate animals. The manner in which respiration is performed, and the phenomena presented with regard to this function under various circumstances, such as submersion, and confinement in unrespirable or deleterious gases, are next considered. An account is then given of a series of experiments made with a view to determine the quantity of oxygen consumed, and of carbonic acid produced, by the respiration of various kinds of insects in different states, from which the conclusion is drawn that the quantity of air deteriorated is governed by several circumstances not necessarily connected with the natural habits of the species. When the insect is in its pupa state, and in complete hybernation, its respiration is at its minimum of energy: and, on the contrary, it is at its maximum when the insect is in the imago state, and in the condition of greatest activity.

In the concluding section of the paper the author institutes an inquiry into the capabilities which insects possess of supporting life, during longer or shorter periods, when immersed in different media: and gives a tabular view of the results of numerous experiments which he made on this subject. It appears from these observations that the order in which these media possess the power of extinguishing vitality is the following: viz. hydrogen, water, carbonic acid, nitrous acid gas, chlorine, and cyanogen. Some of these agents, however, affect respiration much more rapidly than others, which, though their action is slower, are eventually more fatal to the insect.

6. "Démonstration de l'égalité à deux droits de la somme des angles d'un triangle quelconque, indépendamment de la théorie des parallèles, et de la considération de l'infini." Par M. Paulet, de Genève. Communicated by P. M. Roget, M.D., Sec. R.S.

The author demonstrates the equality of the sum of the angles of a triangle to two right angles, by the aid of a preliminary theorem, of which the following is the enunciation. A straight line forming an acute angle with another straight line, will, when sufficiently produced, meet any line, perpendicular to the latter, and situated on the side of the acute angle.

7. "Experimental Researches into the Physiology of the Human Voice." By John Bishop, Esq. Communicated by P. M. Roget, M.D., Sec. R.S.

The following are the conclusions deduced by the author from the inquiries which form the subject of the present paper.

1. The vibrations of the glottis are the fundamental cause of all the tones of the human voice.

2. The vibrating length of the glottis depends conjointly on the

tension and resistance of the vocal ligaments, and on the pressure of the column of air in the trachea.

3. The grave tones vary directly, and the acute tones inversely, as the vibrating length and tension of the vocal ligaments.

4. The vocal tube is adjusted to vibrate with the glottis by the combined influence of its variations of length and of tension.

5. The elevation of the larynx shortens the vocal tube; and its depression produces the contrary effect. The diameter and extension of the tube vary reciprocally with the length.

6. The falsetto tones are produced by a nodal division of the column of air, together with the vocal tube, into vibrating lengths.

7. The pitch of the vocal organs, when in a state of rest, is, in general, the octave of their fundamental note.

The paper is illustrated by several drawings.

8. "Du Son et de l'Electricité." Anonymous, with the signature of *Hermes*. Being a Prize Essay for the Royal Medal.

This paper contains the account of a great number of facts and observations, collected from various sources, on the subject of the relations subsisting between electricity, the production of sound, the crystallization of bodies, the transmission of heat, the emission of light, and various atmospheric changes; from the consideration of which the general conclusion is drawn that all these phenomena are perhaps the results of the undulations of some ponderable material.

9. "Physiological Remarks on several Muscles of the Upper Extremity." By F. O. Ward, Esq., Medical Student at King's College, London. Communicated by P. M. Roget, M.D., Sec. R.S.

There is a remarkable fold in the tendon of the pectoralis major muscle, described by all anatomists, but the purpose of which has never yet, as the author believes, been explained. The muscle itself consists of two portions, one smaller and upper, arising from the clavicle, and passing downwards and outwards to an insertion in the humerus at a greater distance from the shoulder-joint than the place where the tendon of the larger and lower portion of the muscle, which arises from the sternum and ribs, and has a general direction upwards and outwards, terminates. Thus the respective portions of tendon belonging to the two divisions of the muscle are found to cross each other; the margin of that proceeding from the lower division passing behind, and appearing above that which proceeds from the upper fibres of the muscle. The forces exerted by each portion of the muscle being thus applied to parts of the bone at different distances from the fulcrum, act with different mechanical powers; which the author finds in every case to correspond exactly with the variations in the effects required to be produced, under different circumstances, by these muscular actions. Those muscular fibres, the tendon of which is inserted nearest to the centre of motion, and which consequently act by a shorter lever, are adapted to motions requiring a less force, but a greater velocity: and such is precisely the mechanical condition of the lower portion of the pectoralis major, which is employed more